

1     What is claimed is:

2

3     1.     A printer drive mechanism, comprising:

4             a drive motor;

5             a drive roller for feeding a media sheet towards and through an image

6     printing area;

7             a drive transmission for coupling to the drive roller to the drive motor for

8     turning the drive roller at different speeds; and

9             a speed selector disposed in the drive transmission for selecting the

10   range of turning speeds of the drive roller at a first speed for feeding the media

11   sheet to the printing area and at a second speed for feeding the media sheet

12   with precision for image printing while in the printing area.

13

14     2.     The drive mechanism of claim 1, wherein the speed selector comprises

15   a clutch gear coupled to the motor wherein the clutch gear is movable between

16   a first and a second position, wherein the first and second positions

17   respectively correspond to the first and second speed.

18

19     3.     The drive mechanism of claim 1, wherein the first speed is faster than

20   the second speed.

21

22     4.     The drive mechanism of claim 1, wherein the first speed is characterized

23   by rapid media sheet feeding with less precision and the second speed is

24   characterized by precision media sheet feeding at a speed slower than the first

25   speed.

26

27     5.     The drive mechanism of claim 1, wherein the drive transmission

28   comprises a low-reduction and a high-reduction mechanism, and the speed

29   selector selectively engages the drive roller with the drive motor through one of

30   the low-reduction and high-reduction transmission mechanisms such that the

31   drive roller feeds the media sheet at the first or second speed respectively.

1

2 6. The drive mechanism of claim 5, wherein the high-reduction  
3 transmission mechanism is a harmonic drive for providing a precise line feed  
4 characteristic to the drive roller.

5

6 7. The drive mechanism of claim 6, further comprising an encoder disk  
7 coupled to the drive motor for detecting rotational positions of the drive roller  
8 through rotational positions of the drive motor.

9

10 8. A printer drive mechanism, comprising:

11       a drive motor;

12       a drive roller for feeding a media sheet towards and through an image  
13 printing area;

14       a low-reduction gear train coupled to the drive roller and selectively  
15 engagable with the drive motor for selectively coupling the drive roller to the  
16 drive motor and for turning the drive roller at a first speed;

17       a harmonic drive coupled to the drive roller and selectively engagable  
18 with the drive motor for selectively coupling the drive roller to the motor and for  
19 turning the drive roller at a second speed; and

20       a clutch gear movable between a first and a second position for  
21 selectively engaging one of the low-reduction gear train and the harmonic drive  
22 with the drive motor.

23

24 9. The drive mechanism of claim 8, wherein the first speed is faster than  
25 the second speed.

26

27 10. A process for feeding a media sheet in a printer, comprising the steps of:  
28       feeding the media sheet at a first speed towards a print zone in the  
29 printer before the media sheet reaches the print zone; and

30       feeding the media sheet at a second speed through the print zone where  
31 images are printed onto the media sheet.

1

2 11. The process of claim 10, wherein the first speed is higher than the

3 second speed.

4

5 12. The process of claim 10, further comprising the step of feeding the

6 media sheet out of the print zone to an output area at a third speed.

7

8 13. The process of claim 12, wherein the first and second speed is equal.

9

10 14. A printer having a drive mechanism for handling a media sheet, the drive

11 mechanism comprising:

12       a drive motor;

13       a drive roller for feeding a media sheet towards and through an image

14 printing area;

15       a low-reduction gear train coupled to the drive roller and selectively

16 engagable with the drive motor for selectively coupling the drive roller to the

17 drive motor and for turning the drive roller at a first speed;

18       a harmonic drive coupled to the drive roller and selectively engagable

19 with the drive motor for selectively coupling the drive roller to the motor and for

20 turning the drive roller at a second speed; and

21       a clutch gear movable between a first and a second position for

22 selectively engaging one of the low-reduction gear train and the harmonic drive

23 with the drive motor.